

**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

Re. Appln.: R. Johannes Luyken, et al.  
Serial No.: 10/600,750  
Filed: June 19, 2002  
For: CIRCUIT ELEMENT HAVING A FIRST LAYER COMPOSED OF  
AN ELECTRICALLY INSULATING SUBSTRATE MATERIAL, A  
METHOD FOR PRODUCING A CIRCUIT ELEMENT,  
BISPYRIDINIUM COMPOUNDS AND THEIR USE IN CIRCUIT  
ELEMENTS  
Confirmation No.: 5993  
Attorney: Jeffrey R. Stone  
Attorney  
Docket No.: 32226.65  
Additional Fees: Charge to Deposit Account 023732

Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

**TRANSMITTAL COVER LETTER**

Sir:

Enclosed for filing are the following:

1. Transmittal of Information Disclosure Statement Before First Office Action and Concise Statement of Relevance;
2. Information Disclosure Statement with twenty-five (25) cited references; and
3. Postcard receipt.

Respectfully submitted,

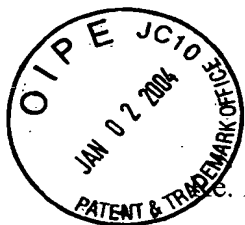
Dated: 12/30/03

By [Signature]  
Jeffrey R. Stone (Reg. No. 47,976)  
BRIGGS AND MORGAN  
2200 IDS Center  
80 South Eighth Street  
Minneapolis, MN 55402  
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By Katey Sathre  
Date December 30, 2003



**IN THE UNITED STATES PATENT AND TRADEMARK OFFICE**

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Commissioner for Patents  
P.O. Box 1450  
Alexandria, VA 22313-1450

Sir:

**TRANSMITTAL OF INFORMATION DISCLOSURE  
STATEMENT BEFORE FIRST OFFICE ACTION AND  
CONCISE STATEMENT OF RELEVANCE**

Applicant submits herewith the reference listed on the attached Information  
Disclosure Statement by Applicant.

This Information Disclosure Statement is being filed before the mailing date of a first  
Office Action on the merits.

Authorization is hereby made to charge any additional fees required or credit any  
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on the date indicated below.

By Katy Sathre  
Dated December 30, 2003


### CONCISE STATEMENT OF RELEVANCE

This Concise Statement of Relevance pertains to documents cited on the attached Supplemental Information Disclosure Statement by Applicant.

1. DE 101 32 640 A1 discloses a molecular electronics device and a method of manufacturing a molecular electronics device, the molecular electronics device allowing to couple molecular electronics molecules to electrodes.
2. DE 101 26 578A1 discloses a memory cell consisting of at least two different molecular or polymeric layers, respectively, forming an electrochemical red/ox-pair, discloses a memory array comprising such memory cells, and discloses a chip card comprising the memory array.
3. DE 100 23 765 A1 discloses an electrochrome device and electrochrome substances.
4. DE 198 01 638 A1 discloses electrochrome systems comprising electrochrome polymers, which are accessible by polymerization, polycondensation, and polyaddition, respectively, for use in devices for variable transmissibility of electromagnetic radiation.
5. DE 42 17 588 C2 discloses photosensitivity-devices of high stability, and discloses methods of producing the photosensitivity-devices.
6. Dehmlov, EV, Slegers, A "Synthesen von hydroxylierten Bipyridinen, III: Synthese von unsymmetrischen und symmetrischen Dihydroxybipyridinen", Liebigs Ann. Chem. 9, S953-959, 1992 discloses synthesis of hydroxylated bipyridines, synthesis of unsymmetrically and symmetrically structured dihydroxybipyridines. Preparation and synthesis of fifteen symmetrical and asymmetrical dimethoxybipyridines and the pertinent diols is disclosed. Reductive cross coupling of halopyridines with Ni (0) may result in complex mixtures. The same is true for an alternative reaction of (trimethylstannyl) pyridines with halopyridines in the presence of Pd(0). UV <sup>1</sup>H-, and <sup>13</sup>C- NMR spectra of the bipyridine derivates are tabulated.

Respectfully submitted,

Dated: 12/30/03

By   
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PTO/SB/08A (10-01)  
Approved for use through 10/31/2002. OMB 0651-0031  
U.S. Patent and Trademark Office: U.S. DEPARTMENT OF COMMERCE

Substantiate for form 1449A/PTO  <b>INFORMATION DISCLOSURE STATEMENT BY APPLICANT</b>  (use as many sheets as necessary)			<b>Complete if Known</b>		
			Application Number	10/600,750	
			Filing Date	June 19, 2003	
			First Named Inventor	R. Johannes Luyken	
			Group Art Unit		
			Examiner Name		
Sheet	1	of	3	Attorney Docket Number	32226.65

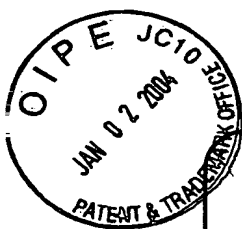
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<sup>1</sup> Applicant's unique citation designation number (optional). <sup>2</sup> See Kinds Codes of USPTO Patent Documents at [www.uspto.gov](http://www.uspto.gov) or MPEP 901.04. <sup>3</sup> Enter Office that issued the document, by the two-letter code (WIPO Standard ST.3). <sup>4</sup> For Japanese patent documents, the indication of the year of the reign of the Emperor must precede the serial number of the patent document. <sup>5</sup> Kind of document by the appropriate symbols as indicated on the document under WIPO Standard ST. 16 if possible. <sup>6</sup> Applicant is to place a check mark here if English language Translation is attached.

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Sheet 2 of 3	Attorney Docket Number	32226.65	

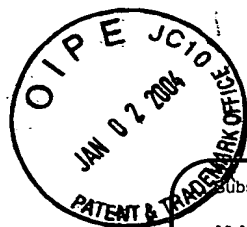
OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	1	C.P. COLLIER et al., Electronically configurable molecular-based logic gates, Science, Vol. 285, S. 391-394, 1999.	
	2	C.P. COLLIER et al., A [2] Catenane-based solid state electronically reconfigurable switch, Science, Vol. 289, pp. 1172-1175, 2000.	
	3	D.I. Gittins et al., A nonometre-scale electronic switch consisting of a metal cluster and redox-addressable groups, Nature, Vol. 408, pp. 67-69, 2000.	
	4	KAWASHIMA et al., The synthesis and properties of a methylviologen analogue, Tetrahedron Letters, Vol. 25, Nr. 25, pp. 1585-1586, 1984.	
	5	A.J. Blacker et al., Molecular Anion Binding and Substrate Photooxidation in Visible Light by 2, 7-Diazapyrenium Cations, Helvetica Chimica Acta, Vol. 70, pp. 1-12, 1987.	
	6	R. BAUER et al., Synthesis and electrochemical properties of some new bypyridinium and related compounds, Z. Naturforsch., B: Chem. Sci. 43(4), pp. 475-482, 1988.	
	7	J. MARCH, Advanced Organic Chemistry, 3. Auflage (Wiley, New York, 1985), p. 597ff.	
	8	P. STEHLE et al., Isotachophoresis of quarternary 4,4'-Bipyridylum Salts - Analytical control of synthesis and purification procedures, J. Chromatogr. 449(1), 299-3-5, 1988.	
	9	H.C. DELONG & D.A. BUTTRY, Ionic Interaktions play a major role in determining the electrochemical behavior of self-assembling viologen monolayers, Langmuir, 6, pp. 1319-1322, 1990.	
	10	X. TANG et al., A vibrational spektroskopische study of the structure or electroactive self-assembled monolayers of viologen derivatives; Langmuir, 10, pp. 2235-2240, 1994	
	11	H.C. DELONG & Buttry, Environmental effects on redox potential of viologen groups in electroactive self-assembling viologen monolayers, Langmuir, 8, pp. 2491-2496, 1992.	

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		Group Art Unit	
		Examiner Name	
Sheet 3 of 3	Attorney Docket Number	32226.65	

OTHER PRIOR ART -- NON PATENT LITERATURE DOCUMENTS			
Examiner Initials *	Cite No. <sup>1</sup>	Include name of the author (in CAPITAL LETTERS), title of the article (when appropriate), title of the item (book, magazine, journal, serial, symposium, catalog, etc.), date, page(s), volume-issue number(s), publisher, city and/or country where published.	T <sup>2</sup>
	12	D.I. GITTINS et al., Diode-like electron transfer across nanostructured films containing a redox ligand, J. Mater. Chem., vol. 10, pp. 79-83, 2000.	
	13	E.V. DEHMLow & A. SLEEGERS, Synthesen von hydroxilierten Bipuridinen, III: Synthese von unsymmetrischen und symmetrischen Dihydroxybipuridinen, Liebigs Ann. Chem. 9, pp. 953-959, 1992.	
	14	H. FISCHER & A.L. SUMMERS, Synthesis, polarography and herbicidal activity of quaternary salts of 2-(4-pyridyl)-1,3,5,5-triazines, 5-(4-pyridyl) pyrimidine, 2-(4-pyridyl) pyrimidine and related compounds, J. Heterocycl. Chem. 17(2), pp. 333-336, 1980.	
	15	E.W. GILL & A.W. BRACHER, The synthesis and characterization of some diazaphenanthrene derivatives, J. Heterocyclic Chem. 20, pp. 1107-1109, 1983.	
	16	D.W. TURNER et al., Molecular Photoelectron Spectroscopy, Wiley, London, 1970.	
	17	A. Ulman, Formation and Structure of Self-Assembled Monolayers, Chem. Rev., Vol 96(4), 1533-1554 (1996).	

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